JUNE 1990 MONTHLY REPORT

Scientific Observation Hole (SOH) Program

Geothermal Resource Permit: GRP 89-1

Lilewa, Kapoho, and Halekamahina, Hawaii

TMK: 1-2-10:01; 1-4-01:02; and 1-4-02:32

Hawaii Natural Energy Institute

University of Hawaii

July 1990

SUMMARY

This document presents a monthly report to the County of Hawaii Planning Department to support the scientific observation hole (SOHs) program in the Kilauea middle and lower east rift zone. The SOHs are for scientific observation purposes only. The holes will not be flow-tested or produced. The information to be gained from the SOHs will provide an assessment of subsurface geological conditions, groundwater level and composition, temperature, drilling conditions, an inventory of possible mineral and geothermal resources, and an eruptive history of the island to the depth drilled.

This report addresses: occurrence and duration of any start-up, shut-down, and operation mode of any SOH/facility; performance testing, evaluation, calibration checks, and adjustment and maintenance of the continuous emission monitor(s) that have been installed; and emission measurements.

I. INTRODUCTION

The County of Hawaii Planning Commission approved, on August 8, 1989, a geothermal resource permit application (GRP 89-1) to drill scientific observation holes (SOHs) in the Kilauea middle and lower east rift zone. This document presents a monthly report, as required in condition 6:

> "The petitioner shall maintain a record in a permanent form suitable for inspection and five (5) copies shall be filed with the Planning Department on a monthly basis during drilling and for six (6) months after the completion of drilling to establish a hole specific baseline and such record shall be available to the community. The record shall include:
>
> a. Occurrence and duration of any start-up, shut-down, and operation mode of any SOH/facility.
>
> b. Performance testing, evaluation, calibration checks, and adjustment and maintenance of the continuous emission monitor(s) that have been installed.
>
> c. Emission measurements reported in units compatible with applicable standards/guidelines."

II. BACKGROUND

The SOHs are for scientific observation purposes only. The holes <u>will not be flow-tested or produced</u>. As designated, four holes are planned on the Big Island of Hawaii. Three of the Big Island holes (SOHs 1, 2, and 4) are on agriculture land and have been permitted by the County of Hawaii Planning Commission. The fourth hole, designated SOH 3, is on conservation land. SOH

activities under Conservation District Use Permit (HA 12/20/85 - 1830) issued to the Estate of James Campbell has been approved.

III. SOH 4 SITE

Drilling Activity

Tonto Drilling Services completed drilling work at SOH 4 on May 21, 1990 to depth of 6,562 feet. Department of Health officials visited site, took composite samples from the mud pit, and transported samples to test laboratory.

Monitoring Program - Air Quality

Drilling completed -- no activity for this monitoring program.

Monitoring Program - Meteorological

Drilling completed -- no activity for this monitoring program.

Monitoring Program - Noise

Drilling completed -- no activity for this monitoring program.

Emissions Reports

Drilling completed -- no activity for this monitoring program.

IV. SOH 1 SITE

Drilling Activity

Tonto drilling services continued drilling activities to a depth of 202 feet where the 9 5/8-inch casing was set and cemented, and the blowout

preventer equipment tested on June 9, 1990. At which time the drill rig was put on standby operation (6 days) until Planning Commission granted permission to continue on June 14, 1990.

Core drilling continued to a depth of 1,802 feet as of June 30, 1990.

Monitoring Program - Air Quality

The air quality monitoring station provides a continuous record of atmospheric H_2S concentrations when interfaced with a data logger or chart recorder. The unit is located in a utility container on-site and power is provided by the drill rig system.

Monitoring Program - Meteorological

Continuous wind speed and direction measurements will be made with a recording wind speed/direction sensor system. A data logger and back-up pressure-sensitive recorder is being used to record the wind speed and direction data. The unit is located in a utility container on-site, and power is provided by the drill rig system.

Monitoring Program - Noise

A noise monitoring station is located at the SOH 1 site during drilling. The air flow to the diesel engines were re-routed, so noise insulation compartments could be installed at centralized intake and exhaust ports. Sound mufflers were also installed at the top of the mast and at the rear of the drill rig.

A second noise station is located at the Laughlin residence, about a quarter mile west of SOH 1 drill site. Some problems with the microphone cable were encountered. A temporary replacement was made up until the damaged unit could be repaired or replaced by the manufacturer.

Emissions Reports

H_2S monitor is located on-site.

V. SOH 3 SITE

No drilling activity has been initiated. Preliminary work for drill site access initiated. SOH 3 will be located in a grubbed area to the north of the existing True/Mid-Pacific drill pad. Tentative plans call for directional drilling from this pad in the northerly direction.

VI. SOH 2 SITE

No drilling activity has been initiated. Ambient noise monitoring is being prepared for SOH 2 site. Findings of the flora/fauna field surveys were submitted to County of Hawaii Planning Department. Permit application was approved by Department of Land and Natural Resources to inspect, modify, and if practical install a pump into existing airstrip well to supply water for drilling operations.

A grading and grubbing permit application has been submitted to the County of Hawaii Planning Department.

APPENDIX

MAINTENANCE REPORT

ALPHA MICROSYSTEMS

1550 Akolea Place
Hilo, Hawaii 96720
(808) 935-7985

HAWAII NATURAL ENERGY INSTITUTE
2540 Dole Street
Honolulu, HI 96822

Attn Arthur S. Seki

July 5, 1990

Dear Art,

This report covers the period Jun. 1, to Jun. 30, 1990.

FENCELINE HAI. This instrument operated normally until June 15. After that, the analyzer was intermittantly inoperative due to power outages or because it was shut down by people dismantling the Plant. The instrument was removed from service on June 25 and reverted to Bechtel Corp. (purchasers of the Plant equipment.)

GILMAN HAI. This instrument operated normally throughout the month with two exceptions: 6 hours data loss on June 15 due to a power outage, and 7 hours loss on June 21 due to a jam of the Lead Acetate tape. Readings were normal and calibrations routine. Data capture was 98%.

SOH-1 HAI. This station operated normally throughout the month. However, there was a substantial amount of data loss between 6-6-90 and 6-13-90 because of drill-site shut-down. Some data was collected during that time, but was unable to corelate the data with actual time, so decided to consider all data during that period invalid. The valid data capture during June was 75%. Calibrations were normal and only minor corrections were necessary.

WOODS HAI. This analyzer operated normally during the month of June with two exceptions: A 5 hour power outage on June 15 and a 6 hour outage on June 21. Calibrations were stable and routine. Data capture was 98%.

WOODS MET. This station operated with only minor problems during June. A 4 hour power outage on June 15, and a 6 hour outage on June 21 caused a 10 hour data loss. The tipping-bucket rain gage was knocked over twice by the local livestock, but caused no data loss. A problem with the right channel of the chart recorder makes reduction of data difficult and the multiplexer has been eliminated as the cause. The only thing left is the chart recorder itself. Will attempt field repairs.

T.P. MET. There were no problems at all at this station during June. Data capture was 100%. Calibrations were stable and routine. No corrections or adjustments were necessary.

SOH-1 MET. This station operated normally during the month of June with the exception of intermittant power outages during drill-rig shut-down. Data was collected during that period, but was unable to corelate the data that was collected with actual time, so all the data was declared invalid.

SOH-4 COLORTEK. These cards were routinely replaced and did not give any indications of color change.

Enclosed:

H2S Data Reduction for Fenceline, Gilman, SOH-4 and Woods for June 1990.
Average, Maximum and total H2S for the above stations.

Meteorological Data Reduction for Woods, T.P., and SOH-4. June 1990.

Synopsis of Woods and T.P. Met Data for June, 1990.

Copy of Station Logs, June, 1990.

July Invoice

J-157 Monday 6-4-90

SOH-1 0931 Clouds 75% WS&DIR Var @ 3-5
Operating normally. No adjustments required.

LOUGHLIN 0910 Clouds 80% WS&DIR 360 @ 3-5
Something is wrong at this station. Sound reading is about 70 db, but ambient level can't be much more than about 40. Calibration check of meter and recorder is right on, but I believe that reading is much too high. Removed mike from the cable and installed on the meter. Sound level now about 35-45 db. Replaced mike on cable and tested again. Reading still 35-45 db. I don't know what caused problem. Maybe there was corrosion on the pin contacts.

J-157 Wednesday 6-6-90

SOH-1 0810 Clouds 85% WS&DIR 290 @ 2-3
Operating normally. Chart reserve and Pen O.K.

LOUGHLIN 0845 Clouds 25% WS&DIR 310 @ 4-5
Same problem as on Monday. Made no adjustments because I want Ron Darby to see the readings as-is.

Re-examined Sound station sites with Ron Darby and tested calibration. Confirmed that Loughlin station operating inproperly. Traced problem to defective extension cable between mike and sound meter. We removed the defective cable, hooked together two 10' cables, installed and tested. Everything now seems normal.

J-159 Friday 6-8-90

SOH-1 0755 Clouds 90% WS&DIR 360 @ 4-5
This station operating normally. No adjustments required for Sound meter, 3 db increase made to recorder.

LOUGHLIN 0928 Clouds 85% WS&DIR 360 @ 4-5
Normal operation. Replacing the mike cable did the trick. Recalibrated sound meter to 110.0 from 110.2 db. The chart recorder required no adjustments.

J-162 Monday 6-11-90

SOH-1
Station is inoperative. Drill rig shut down. I was told that The generator is running during the night to provide light and power, and also during the day. However, am not able to provide exact times for down-time and operation.

LOUGHLIN 0925 Clouds 60% WS&DIR 360-5-7
Operating normally. No adjustments required.

J-164 Wednesday 6-13-90

SOH-1
Station is inoperative.

LOUGHLIN 0945 Clouds 80% WS&DIR Calm
Operating normally. No adjustments required

J-166 Friday, 6-15-90

SOH-1 0755 Clouds 30% WS&DIR Calm

Started drilling main yesterday. Station now operating normally again. Sound meter calibration to 110.0 from 109.6. No adjustments to recorder. Renewed chart. Chart reserve and Pen O.K.

LOUGHLIN 0845 Clouds 70% WS&DIR Calm

This station was operating normally until 0800 this morning when power was shut off in the Pahoa area for power-line repair. Expected power return about noon-1300. Unable to Calibrate. Renewed chart, reserve O.K., Replaced pen.

J-169 Monday, 6-18-90

SOH-1 0755 Clouds 30% WS&DIR 45 @ 8-10

Chart was jammed. No data since 6-15. Cleared jam and tested. Chart reserve and pen O.K.

LOUGHLIN 0835 Clouds 80% WS&DIR 20 @ 8-10

Station operating normally...No problems

J-171 Wednesday, 6-20-90

SOH-1 0800 Clouds 100%,Rain WS&DIR 100 @ 2-3

Station operating normally, but Chart pen had run dry, so some data was lost. Replaced pen, chart reserve O.K.

LOUGHLIN 0840 Clouds 100%,Rain WS&DIR 90 @ 2-3

Operating normally. Replaced chart, Pen O.K.

*** Received spare Microphones from Quest...$202.54

J-173 Friday, 6-22-90

SOH-1 0810 Clouds 70% WS&DIR 50 @ 6-8

Station operating normally. Checked calibration of both meter and recorder...Adjusted meter to 110.0 from 110.2. Made 1 db increase adjustment to chart recorder.

LOUGHLIN 0835 Clouds 90% WS&DIR 50 @ 6-8

Station operating normally. Checked calibration of both meter and recorder. No adjustments were required to either. Chart reserve and pen O.K.

J-176 Monday 6-25-90

SOH-1 0800 Clouds 75% WS&DIR 35 @ 6-8

Station operating normally. No problems

LOUGHLIN 0845 Clouds 90% WS&DIR 40 @ 8-10

Station operating normally. No problems

J-178 Wednesday 6-27-90

SOH-1 0820 Clouds 100% rain WS&DIR 95 @ 2-3

Station operating normally. No problems.

LOUGHLIN 0840 Clouds 100% rain WS&DIR 90 @ 0-2

Pen ran dry. (black) these seem to have a very short life. Replaced with red, which last longer. Some data lost.

J-180 Friday, 6-29-90

SOH-1 0810 Clouds 100% WS&DIR 350 @ 4-5

Station operating normally. Replaced chart and Pen. Calibrated meter to 110.0 from 109.7 db. Increased recorder setting by 1 db.

LOUGHLIN 0855 Clouds 90% WS&DIR 35 @ 6-8

Station operating normally. Replaced chart, Pen O.K. Checked meter calibration, no adjustment necessary. Decreased recorder setting by 1 db.

NAME EXPERIMENT NO.

J-155 Monday 6-4-90

Woods NAI Range 0-2 ppb
Flow steady @ 3.0, chart OK - Replaced Lead Acetate
Tygon Dry - cleaned sample Chart - Pump & Bubbler OK
Check 23.9 To, up .1%
Optics 1530-1540, up 10 ct, adj To 1530-1540
Range - High 1V Low 1V
Zero Calib - 25 2 1 0 0
Span Calib - Exp 50 50 50 50 Span Pot 50
Act 51 45 47 48 Hg Right 120

Woods Met
Operating Normally - Chart OK - Re-balanced Rain Gage
IP Met
Operating Normally - Chart & Pot OK
SOX-1 Met
Operating Normally - Minor Span & Chart Recorder Drive

Eneline NAI Range 0-20 ppb
Flow steady @ 3.0, chart & Lead Acetate OK
Tygon Dry - Pump & Bubbler OK
Check 25.5 To, up .1%
Optics 1840-1830 down 10 ct, No Adj.
Zero Calib 24 11 4 2 0

Rimco NAI Range 0-2 ppb
Flow steady @ 3.0, chart OK, Replaced Lead Acetate
Drained Tygon - cleaned Sample Chart - Pump & Bubbler OK
Check 19.8%, down .7%, Adj Cycle Time 1 Reg
Optics 1880-1880, down 10 ct, No adj.
Zero Calib 12 6 0 0

SOX-1 NAI Range 0-2 ppb
Tygon Dry - Pump & Bubbler OK
Check 17.5%, up .4%
Optics 1000-1780, down 20 ct, adj To 1720-1780
Flow Steady @ 2.5, chart & Lead Acetate OK
Zero Calib 16 4 1 0

NAME EXPERIMENT NO.

J-157 Wednesday 6-6-90

Woods HAI Range 0 - 3 ppb
Flow Steady @ 3.0, Replaced Chart, Lead Acetate O.K.
Drained Tygon - Filled Bubbler - Pump O.K.
Check 23.8%, down .1%
Optics Steady @ 1540-1540
Zero Calib 23 10 2 0

Woods Met
Operating Normally - Chart O.K
T.F Met
Operating Normally - Chart + Bell O.K
SO4-1 Met
Operating Normally - Chart O.K

Concord HAI Range 0-3 ppb
Flow Steady @ 3.0, Renewed Chart, Lead Acetate O.K.
Drained Tygon - Pump + Bubbler O.K
Check 25.1%, up .1%
Optics Steady @ 1840-1840
Range: High 1:1 Low 1:1
Zero Calib 25 4 1 0
Span Calib - Exp 50 50 50 50 50
Act 29 43 49 50 50

Bilmm HAI Range 0-3 ppb
Flow Steady @ 3.0 Renewed Chart, Lead Acetate O.K
Tygon Dry - Pump + Bubbler O.K
Check 19.1%, down .1%
Optics 1890-1890, down 10 -, No adj.
Zero Calib 20 6 3 1 0

SO4-1 HAI. Range = 0-2 ppb
Flow Steady @ 2.5, Renewed Chart, Lead Acetate O.K
Tygon Dry - Pump + Bubbler O.K
Check 17.1%, down .4%
Optics 1750-1760, up 10 -, adj. To 1760-1760
Zero Calib 18 5 3 0 0

NAME EXPERIMENT NO.

I-159 Friday 6-8-90

Woods HAI Range 0 – 3 ppb
Flow steady @ 3.0, chart + Lead Acetate OK
Drained Tygon – Filled Bubbler – Pump OK
Check 23.9%, up .1%
Optics 1540 – 1570, up 30 ea, adj to 1570-1570
Zero Calib 4 2 0 0

Woods, Met
Operating Normally – Chart OK

T.P. Met
Operating Normally – Removed Chart – Bat 12.1

SOH-1 Met
Operating Normally – Removed Chart

Fenceline HAI Range 0 – 3 ppb
Drained Tygon – Cleaned Sample Chamb – Pump + Bubbler OK
Flow Steady @ 3.0, Chart OK – Replaced Lead Acetate
Check 25.2%, up .1%
Optics 1840 – 1870, down 10 ea, Readj.
Zero Calib 24 6 0 1 0

Olney HAI Range 0 – 3 ppb
Flow steady @ 3.0, Chart + Lead Acetate OK
Tygon Dry – Pump + Bubbler OK
Check 19.8%, up .1%
Optics 1890 – 1920, up 30 ea, adj to 1920-1920
Range – High Lt Low Lt Zero Pot (Turned Left) 0
Zero Calib 19 8 3 1 1
Span Calib – Exp 50 50 50 50 50
Act 37 48 48 50 50

SOH-1 HAI Range 0 – 3 ppb
Flow steady @ 2.5 – Chart + Lead Acetate OK
Tygon Dry – Pump + Bubbler OK
Check 19.5%, up 2.4% – Adj Span Pot Right
Optics Steady @ 1760 – 1760
Range – High Lt Low Lt
Zero Calib 17 5 1 1 0

COLDTEK – Removed Collected Cards – No Color Change apparent

NAME EXPERIMENT NO.

T-162 Monday 6-11-90

Woods NAI Range 0 - 2ppb

Flow steady @ 3.0, chart + lead Acetate OK.

Tygon Dry - Pump + Bubbler OK

Check 24.0%, up - 120

Optics 1570-1580, down 10 ea, No adj:

Zero Calib 23 3 2 0

Woods Met

Operating Normally - chart OK

T.P. Met

Operation Normally - Chart + B & T OK

SOH-1 Met

Inoperative - No Power - Drill Rig Shut Down

Fairchild NAI Range 0 - 2ppb

Flow Steady @ 3.0, chart + Lead Acetate OK

Tygon Dry - Pump + Bubbler OK

Check 25.1%, down No

Optics 1850-1830, down 20 ea, adj to 1830-1830

Zero Calib 22 2 1 1 0

Climet NAI Range 0 - 3ppb

Flow Steady @ 3.0, chart + Lead Acetate OK

Tygon Dry - Pump + Bubbler OK

Check 49.8% - Steady

Optics 1920-1900, down 20 ea, adj to 1900-1900

Zero Calib 19 4 0 0

SOH-1 NAI

Inoperative - No Power - Drill Rig Shut down

NAME EXPERIMENT NO.

I-164 Wednesday, 6-13-90

Woods HAI Range 0-2 ppb

Flow steady @ 3.0, Renewed Chart, Lead Acetate 0.K

Tygon Dry - Pump + Bubbler O.K

Check steady @ 24.0%

Optics 15-70 - 15-50, down 20 -, adj. To 15-50-25-50

Range - High 1:1 Low 1:X

Zero Calib 24 6 2 1 0

Span Calib - Exp 50 50 50 50

Act 30 36 49 50

Woods Met

Operating Normally - Replaced Chart - Rain Gage O.K

IF Met

Operating Normally - Chart & Batt O.K

SOK-1 Met

Inoperative - No Power - Drill Rig Shut Down

Evac-Line HAI Range 0-2 ppb

Flow steady @ 3.0, Replaced Chart, Lead Acetate O.K

Tygon Dry - Filled Bubbler - Pump O.K

Check 25.2%, up .1%

Optics Steady @ 1830-1830

Zero Calib 21 4 2 0 0

Gilman HAI Range 0-2 ppb

Flow steady @ 3.0, Renewed Chart - Lead Acetate O.K

Tygon Dry - Pump & Bubbler O.K

Check 14.5%, down .3%

Optics 1910 - 1900, down 10 -, No Adj.

Zero Calib 12 9 2 0

SOK-1 HAI

Inoperative - No Power - Rig shut down

NAME EXPERIMENT NO.

J-166 AM Friday 6-15-90

Woods HAI Range Ø – 3 ppb

Power Turned off from 0800 To 1200 Today.
Unable To Test operation

Woods Met

Power off - 0800–1200 – Replaced MUX

TP Met

Operating Normally - Renewed Chart - Batt. OK @ 12.06

SOH-1 Met

Operating Normally – Renewed Chart - Calibration Check

Fenceline HAI Rang- Ø – 3 ppb

Power off 0800-1200 Today – unable to Check Calib

Gilman HAI Range Ø – 3 ppb

Power off 0800-1200 Today – unable to Check

SOH-1 HAI Rang- Ø-3 ppb

Flow adj. to 3.0, chart OK - Replaced lead Acetate
Tygon Day - Pump + bubbler OK - Cleaned sample Cannula
Check 19.6 Pg, Cp. 19a
Optics 1780-1750, down 30 ea, adj. To 1750-1750
Range - High L Low L
Zero Calib 18 4 2 Ø
Span Calib - Exp 50 50 50 50 (Span Pot 50
Act 31 45 47 49 Trim Pot) 50

NAME EXPERIMENT NO.

J-169 Monday 6-18-90

Woods NAI Range 0 - 3 ppb

Flow steady @ 3.0, chart OK - Replaced lead Acetate

Drained Tygon - Filled Bubbler - Cleaned Sample Chamb.

Check 24.1%, up .1%

Optics 1550-1580, up 30 ~, adj to 1570-1570

Zero Calib 22 0 3 0 0

Woods Met.

Operating Normally - chart OK, Multiplexer Normal

T.P. All-4

Operating Normally - Chart + Batt OK

SOH-111-4

operating Normally - Chart OK

Fencline NAI Range 0 - 3 ppb

Flow steady @ 3.0, chart + lead Acetate OK

Tygon Dry - Pump + Bubbler OK

Check 25.0%, down .2%

Optics 1820-1810, down 10 ~, No adj.

Zero Calib 22 0 -0 0

Gilman NAI Range 0 - 3 ppb

Flow Steady @ 3.0, chart OK - Replaced lead Acetate

Drained Tygon - Filled Bubbler - Cleaned Sample Chamb.

Check Steady @ 19.5%

Optics 1910-1900, down 10 ~, No Adj.

Range -	High 1:1	Low 1:1
Zero Calib	12 4 2 1 0	
Span Calib - Exp	50 50 50 50	
Act	34 45 49 50	

SOH-1 NAI Range 0 - 3 ppb

Flow Steady @ 3.0, chart + lead Acetate OK

Tygon Dry - Pump + Bubbler OK

Check Steady @ 19.6%

Optics 1780-1800, up 20 ~, adj to 1800-1800

Zero Calib 18 3 0 1 0

NAME EXPERIMENT NO.

J-171 Wednesday 6-20-90

Woods HAI Range Ø - 3 ppb

Flow steady @ 3.0, Renewed Chart, Lead Acetate O.K

Tygon Dry - Pump + Bubbler O.K

Check 23.9%, down .2%

Optics 1570-1530, down 40 ea, adj to 1530-1530

Zero Calib 23 4 -Ø Ø

Woods N-E

Operating Normally - Renewed Chart

TP N-E

Operating Normally - Chart + Batt O.K

SOH-1-N-E

Operating Normally - Chart O.K

Equiline HAI Range Ø - 2 ppb

+ Power switch was OFF - some data lost -

Flow steady @ 3.0, Renewed Chart, Lead Acetate O.K

Drained Tygon - Pump + Bubbler O.K

Check steady @ 25%

Optics Steady @ 1820-1820

Zero Calib 78 -1 5 1 Ø

G-Man HAI Range Ø - 2 ppb

Flow steady @ 3.0, Renewed Chart, Lead Acetate O.K

Tygon Dry - Pump + Bubbler O.K

Check 19.6%, up .1%

Optics 1910-1870, down 20 ea, adj to 1870-1870

Zero Calib 14 9 1 Ø

SOH-1 HAI Range Ø - 2 ppb

Flow Steady @ 3.0, Renewed Chart, Lead Acetate O.K

Tygon Dry - Pump + Bubbler O.K

Check 20.7%, up .8%

Optics Steady @ 1880-1800

Range - High 1st low 1 ppb High, adj for 1st

Zero Calib 20 6 3 1 Ø

Span Calib - Exp	50	50	50	50 (span Pot ½ Right)	50
Act	30	40	46	48	50

NAME EXPERIMENT NO.

J-173 Friday 6-22-90

Woods HAT Range 0-3 ppb
Flow steady @ 3.0, chart + Lead Acetate OK
Tygon Dry - Pump + Bubbler OK
Check steady @ 23.9%
Optics 1530-1540, up 10-2, adj to 1540-1540
Range- High 1:1 Low 1:1
Zero Calib 21 9 3 0
Span Calib - Exp 50 50 50 50 (span pot 1/4 Right) 50
Act 19 38 47 48 50

Woods Met
Operating Normally but Ram Cage was Knocked over-
Rebalanced + Tested - O.K. - Chart OK

TP Met
Operating Normally - Removed Chart - Replaced Battery

SO2-1 Met
Operating Normally - Chart OK

Env-Lite HAT
Inoperative - Power Turned OFF at Instrument. Have been informed That Power off Condition will be Permanent on 6-25-90 - Instrument will belong To Beckett.

Gilmont HAT Range 0-3 ppb
Flow steady @ 3.0, Replaced Chart - Lead Acetate OK
Tygon Dry - Filled Bubbler - Pump OK
Check 19.8%, up .2%
Optics 1880-1890, up 10-2, adj to 1890-1890
Zero Calib 18 9 2 1 0

SO2-1 HAT Range 0-2 ppb
Flow steady @ 3.0, Chart + Lead Acetate OK
Tygon Dry - Pump + Bubbler OK
Check 20.9%, up .1%
Optics 1810-1820, up 10-2, adj to 1820-1820
Zero Calib 18 5 2 0

Colortec
Replaced Carbs - No color change Visible.

NAME EXPERIMENT NO.

J-176 Monday 6-25-80

Woods HAI Range ϕ - 3 ppb
Flow steady @ 3.0, chart & Lead Acetate O.K
Tygon Dry - Filled Bubbler - Pump O.K
Check Steady @ 23.9%
Optics 1540-1560, up 20 ea, adj to 1560-1560
Range High 1:1 Low 1:1
Zero Calib 84 6 2 0

Woods Met
Rain Gage was Tipped over again - Recalibrated & Tested
T.I Met
Operating Normally - Replaced Chart
SOH-1 Met
Operating Normally - No Problems

Env-Tec HAI Range ϕ - 2 ppb
* This instrument Operating Normally - Removed from Service and Removed East Chart.

Environ HAI Range ϕ - 2 ppb
Flow Steady @ 3.0, chart & Lead Acetate O.K
Tygon Dry - Pump & Bubbler O.K
Check Steady @ 19.8%
Optics 1910-1890, down 20 ea, adj to 1890-1890
Range High 1:1 Low 1:1
Zero Calib 9 102 4 1 0

SOH-1 HAI Range ϕ - 2 ppb
Flow Steady @ 3.0, Replaced Chart, Lead Acetate O.K
Tygon Dry - Filled Bubbler - Pump O.K
Check 21.2%, up .3%
Optics 1830-1850, up 20 ea, adj to 1850-1850
Range - High 1:1 Low 1:1
Zero Calib 20 4 1 0

NAME EXPERIMENT NO.

J-178 Wednesday 6-27-90 Range Ø-2 ppb

Flow Woods HAI

Flow Steady @ 3.0, Renewed Chart, Lead Acetate OK

Tygon Dry - Pump - Bubbler O.K.

Check 24.1%, up .2%

Optics 1560-1550, down 10-a, No Adj.

Range - High 1:1 Low 1:1

Zero Calib 24 5 Ø 1 Ø

Woods Met

Operating Normally - Renewed Chart - Replaced MUX.

Tested Bias Battery on Rain Translator.

T.P. Met

Operating Normally - Chart & Bat. OK

SOH-1 Met

Operating Normally - Chart OK

Gilman HAI Range Ø-2 ppb

Flow adjusted to 3.0, Renewed Chart, Lead Acetate OK

Tygon Dry - Pump & Bubbler OK

Check 19.6%, down .2%

Optics 1880-1870, up 10-a, adj to 1890-1890

Range - High 1:1 Low 1:1

Zero Calib 12 1 3 1 Ø

Span Calib - Exp 50 50 50 50 50 } No Adj. Necessary

Act 34 47 49 49 50

SOH-1 HAI Range Ø-2 ppb

Flow steady @ 3.0, Renewed Chart, Lead Acetate OK

Tygon Dry - Pump & Bubbler OK

Check 20.7% down .3%

Optics 1830-1820, down 10-a, No adj.

Range - High 1:1 Low 1:1

Zero Calib 21 9 2 Ø

NAME EXPERIMENT NO.

J-180 Forden 6-29-90

Woods H₂S

Range 0-3 ppb

Flow Steady @ 3.0, chart & lead Acetate OK

Tygon Dry - Pump + Bubbler OK

Check 24.0 To, down .1 To

Optics Steady @ 1560-1560

Range - High 1:1 Low 1:1

Zero Calib 22 & -0 0

Woods Met

Operating Normally - Chart OK

TP Met

Operating Normally - Renewed chart - Batt O.K. @ 12.4 -

SOH-1 Met

Operating Normally - Renewed Chart

Gilman H₂S

Range 0-3 ppb

Flow Steady @ 3.0, chart + Lead Acetate OK

Tygon Dry - Pump + Bubbler OK

Check 19.7 To, up .1 To

Optics 1910-1900, down 10 - No adj.

Range - High 1:1 Low 1:1

Zero Calib 1 1 2 0 0

SOH-1 H₂S

Range 0-2 ppb

Flow Steady @ 3.0, chart O.K. Replaced Lead Acetate

Drained Tygon - Coiled Bubbler - Cleaned Sample Chamber.

Check Steady @ 20.9%

Optics 1830-1810, down 20 -, adj to 1810-1810

Range - High 1:1 Low 1 ppb High, adj for 1:1

Zero Calib Exp	50	50	50	50	(Span Pot Full Right)	50
Act	24	41	48	49		50

Colen TEF

Replaced Bands - No visible colen change

H2S CHART REDUCTION -- SOH-1 Station

From 6-1-90 to 6-30-90

HOUR:	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Avg	Max	Total
0601	‡‡	‡‡	‡‡	‡‡	‡‡	‡‡	‡‡	‡‡	‡	‡	1	1	1	2	2	2	2		2	2	2	2	2	1	1	2	24
0602	1	1	1	1	1	1	2	2	1	1	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	39
0603	1	1	2	2	2	0	1	1	2	2	2	1	1	1	1	2	2	1	1	1	1	2	2	1	1	2	33
0604	1	1	1	1	1	1	2	1	2	2	2	2	2	2	2	1	1	1	2	2	1	1	1	1	1	2	34
0605	1	1	2	1	1	1	1	1	0	1	1	2	2	2	2	2	2	1	2	1	1	1	2	2	1	2	33
0606	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	0	0	0
0607	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	0	0	0
0608	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	0	0	0
0609	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	0	0	0
0610	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	0	0	0
0611	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	0	0	0
0612	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	0	0	0
0613	‡‡	‡‡	‡‡	‡‡	‡‡	‡‡	‡‡	‡‡	‡‡	‡‡	‡‡	‡‡	‡‡	2	2	2	3	2	2	2	3	2	2	2	1	3	24
0614	1	2	1	2	2	2	2	1	1	2	1	1	1	1	2	1	2	1	1	2	2	1	1	1	1	2	34
0615	1	0	1	1	1	1	1	2	2	2	2	2	1	2	2	2	2	2	2	1	1	1	2	2	2	2	36
0616	2	1	1	2	1	2	1	3	2	2	2	2	2	2	2	2	2	2	1	2	2	2	3	1	2	3	44
0617	1	1	1	2	2	2	1	1	2	2	3	3	2	1	2	2	2	2	2	2	2	1	1	2	2	3	42
0618	1	1	1	1	1	1	1	2	2	1	2	1	2	1	1	1	2	1	1	2	1	1	1	2	1	2	31
0619	2	1	1	1	1	2	2	2	2	2	2	2	1	1	1	1	2	2	2	1	2	2	2	1	2	2	38
0620	2	1	1	1	1	2	1	2	2	2	2	2	2	2	2	2	1	1	2	1	1	1	1	2	2	2	37
0621	2	1	1	2	2	2	1	1	1	1	1	1	0	1	1	2	1	2	1	1	2	2	2	2	1	2	33
0622	2	2	2	2	2	2	1	2	2	3	2	1	2	2	2	1	1	1	1	1	1	1	1	2	2	3	39
0623	2	2	2	2	2	2	2	2	1	3	2	2	2	2	2	2	2	2	1	1	1	1	1	1	2	3	42
0624	2	1	1	1	1	2	2	1	2	1	0	2	2	1	2	2	2	2	2	1	1	1	1	2	1	2	35
0625	2	2	2	2	2	1	1	1	2	2	1	1	1	1	1	1	1	1	1	2	2	1	2	2	1	2	35
0626	2	2	3	2	2	1	1	2	2	2	2	2	1	1	1	1	2	2	2	2	1	2	2	2	2	3	42
0627	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	0	1	1	1	1	1	1	2	1	2	2	36
0628	1	1	1	1	2	1	2	2	2	2	1	1	1	1	1	1	2	1	2	1	1	1	1	2	1	2	32
0629	1	1	1	1	1	1	0	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	37
0630	1	1	1	1	2	2	2	2	2	1	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	44
																											824
AVG.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2		
MAX.	2	2	3	2	2	2	2	3	2	3	3	3	2	2	2	2	3	2	2	2	3	2	3	2		3	

‡‡=Power or Equip. failure; ‡=Calibration

DAILY AVERAGE, MAXIMUM AND TOTAL H2S READINGS

June 1 To June 30, 1990

	Fenceline			BOH-1			Gilman			Woods		
Date	Avg	Max	Total	Avg	Max	Total	Avg	Max	Total	Avg	Max	Tota
0601	2	3	39	1	2	24	1	3	34	2	3	37
0602	2	3	36	2	2	39	2	3	42	2	2	40
0603	1	2	32	1	2	33	2	3	40	2	3	44
0604	2	4	53	1	2	34	2	3	40	2	3	47
0605	2	3	41	1	2	33	2	3	41	2	3	43
0606	2	3	43	-	-	-	2	3	42	2	3	42
0607	2	3	36	-	-	-	1	3	35	2	3	36
0608	2	2	27	-	-	-	2	3	41	1	3	35
0609	1	2	23	-	-	-	1	2	35	2	3	38
0610	1	2	29	-	-	-	1	3	30	1	2	28
0611	1	2	28	-	-	-	2	3	40	2	3	37
0612	1	3	34	-	-	-	2	2	45	2	3	43
0613	1	2	31	1	3	24	2	3	43	2	3	39
0614	1	2	35	1	2	34	2	4	44	2	3	44
0615	1	2	28	2	2	36	1	2	30	1	3	31
0616	1	3	22	2	3	44	1	2	35	2	3	36
0617	1	3	22	2	3	42	2	3	40	1	2	30
0618	2	3	45	1	2	31	1	2	31	1	3	34
0619	1	3	24	2	2	38	1	2	28	1	3	31
0620	1	3	14	2	2	37	1	2	26	1	3	35
0621	1	3	26	1	2	32	1	2	18	1	2	27
0622	1	3	14	2	3	39	1	2	30	1	2	35
0623	2	3	45	2	3	42	1	3	33	2	3	48
0624	2	3	38	1	2	35	1	2	29	2	3	29
0625	1	2	19	1	2	35	2	3	37	2	3	37
0626	-	-	-	2	3	42	1	3	33	2	3	45
0627	-	-	-	2	2	36	1	2	28	2	3	42
0628	-	-	-	1	2	32	1	3	29	2	3	40
0629	-	-	-	2	2	37	2	2	38	2	3	41
0630	-	-	-	2	3	44	1	2	32	2	3	42
	1	4	784	2	3	824	1	4	1029	2	3	1148

All readings are in parts per billion (ppb)

Synopsis of Average Daily Meterological Station Readings

06/1989

	T. P. MET					WOODS MET						
DAY	TEMP	WD	WS	RAIN	RH	TEMP	WD	WS	RAD	RAIN	RH	SIGMA
01	22.6	341	7.0	0.01	-	23.5	349	3.5	210	0.02	-	39.3
02	23.0	1	7.3	0.00	-	23.4	18	3.5	186	0.02	-	42.8
03	23.0	355	5.2	0.05	-	23.2	360	3.2	114	0.03	-	46.8
04	22.7	322	4.5	0.05	-	22.9	328	2.9	126	0.15	-	37.0
05	23.1	336	4.4	0.08	-	22.5	23	3.5	156	0.17	-	29.0
06	22.9	53	4.3	0.13	-	22.9	18	3.0	190	0.25	-	38.1
07	23.0	14	4.6	0.20	-	23.4	49	3.5	140	0.06	-	38.9
08	23.0	353	6.7	0.04	-	23.5	31	3.4	164	0.00	-	45.4
09	22.7	329	6.5	0.01	-	23.2	33	4.0	188	0.03	-	42.5
10	22.0	345	5.7	0.08	-	22.4	36	2.8	166	0.05	-	36.8
11	23.0	351	5.8	0.03	-	23.6	22	3.0	228	0.06	-	35.8
12	22.2	349	6.0	0.30	-	22.6	361	2.8	142	0.16	-	40.3
13	22.2	346	5.8	0.14	-	22.8	22	3.4	190	0.17	-	35.2
14	21.4	336	6.3	0.66	-	21.9	356	4.6	118	0.58	-	35.8
15	22.5	330	5.5	0.22	-	22.5	360	3.4	130	0.16	-	43.5
16	21.5	351	6.0	0.33	-	22.5	1	3.1	168	0.32	-	45.1
17	22.4	29	8.5	0.05	-	23.2	24	4.5	172	0.02	-	51.0
18	22.4	339	6.1	0.19	-	22.9	346	4.9	206	0.19	-	37.7
19	22.1	330	5.8	0.06	-	22.5	340	4.8	128	0.10	-	34.3
20	21.7	337	5.8	0.72	-	22.0	326	4.9	82	0.64	-	31.0
21	22.3	340	6.1	0.03	-	22.5	346	4.1	48	0.00	-	34.8
22	22.4	343	6.0	0.04	-	23.1	358	4.8	164	0.05	-	41.6
23	21.8	334	7.1	0.12	-	22.3	351	5.6	164	0.24	-	39.4
24	22.8	18	7.5	0.04	-	23.2	13	5.1	136	0.02	-	48.7
25	22.8	5	6.7	0.06	-	23.1	15	4.4	180	0.01	-	58.7
26	21.1	319	4.9	0.11	-	21.8	63	3.7	112	0.12	-	41.8
27	22.0	359	5.5	0.38	-	22.7	345	3.7	114	0.23	-	36.2
28	22.0	325	6.5	0.21	-	22.7	335	5.0	182	0.17	-	36.7
29	22.5	337	7.1	0.31	-	23.4	357	5.5	206	0.31	-	42.3
30	23.3	328	5.8	0.14	-	23.5	14	5.1	176	0.09	-	46.3
AVG	22.4	347	6.0	0.16	0	22.9	7	4.0	156	0.15	0	40.4
MAX	23.3	-	8.5	0.72		23.6	-	5.6	228	0.64		58.7
MIN	21.1	-	4.3	0.00	1000	21.8	-	2.8	48	0.00	1000	29.0
TOT				4.79					4686	4.42		

Meteorology Station Log
SOH-11
6-1-20 to 6-30-20

Time	W/D	W/S	W/D	W/S	W/D	W/S	W/D	W/S
	0601		0602		0603		0604	
0000	–	–	360	5	30	9	40	4
0100	–	–	10	4	335	3	35	4
0200	–	–	360	3	350	4	30	3
0300	–	–	340	3	360	4	360	3
0400	–	–	320	4	360	4	280	2
0500	–	–	310	5	315	3	265	3
0600	–	–	290	4	340	4	310	3
0700	–	–	280	4	320	3	280	2
0800	–	–	300	3	300	3	280	4
0900	–	–	315	2	275	4	300	5
1000	–	–	320	4	285	4	315	6
1100	360	9	350	7	305	4	315	6
1200	10	10	360	8	15	8	5	8
1300	20	9	360	9	10	6	350	5
1400	15	10	20	10	35	7	55	8
1500	15	10	35	12	55	8	40	8
1600	15	10	35	13	45	8	40	6
1700	15	9	40	14	45	8	15	5
1800	15	8	40	9	40	8	5	6
1900	10	6	25	11	40	5	280	3
2000	10	5	20	9	45	4	265	5
2100	10	5	20	9	50	3	300	2
2200	15	5	360	4	35	3	265	3
2300	5	4	350	4	20	3	270	3

Time	W/D	W/S	W/D	W/S	W/D	W/S	W/D	W/S
	0605		0606		0607		0608	
0000	310	4	250	3	40	2	40	2
0100	280	2	340	3	40	2	360	3
0200	270	3	45	3	40	2	295	3
0300	260	4	65	2	20	2	310	4
0400	270	4	250	3	275	2	305	2
0500	275	5	300	2	270	2	285	2
0600	260	4	95	3	265	3	270	2
0700	340	6	105	2	250	3	275	2
0800	30	10	125	3	265	3	315	5
0900	25	9	110	4	320	5	345	7
1000	35	6	350	7	25	6	40	9
1100	45	4	20	8	35	8	50	10
1200	250	4	40	8	40	8	45	10
1300	310	4	40	6	65	7	45	9
1400	–	–	45	6	85	7	40	10
1500	–	–	40	8	90	6	60	8
1600	–	–	45	5	80	4	45	8
1700	–	–	25	4	25	5	25	7
1800	–	–	20	3	40	4	35	6
1900	–	–	25	2	35	4	25	3
2000	–	–	35	2	30	3	360	4
2100	–	–	40	2	25	2	10	6
2200	–	–	40	2	15	2	355	4
2300	–	–	40	2	40	2	320	4

Time	W/D	W/S	W/D	W/S	W/D	W/S	W/D	W/S
	0609		0610		0611		0612	
0000	310	4	270	3	–	–	–	–
0100	300	3	270	3	–	–	–	–
0200	290	4	280	3	–	–	–	–
0300	310	4	–	–	–	–	–	–
0400	305	4	–	–	–	–	–	–
0500	295	4	–	–	–	–	–	–
0600	325	7	–	–	–	–	–	–
0700	5	7	–	–	–	–	–	–
0800	10	9	–	–	–	–	–	–
0900	20	11	–	–	–	–	–	–
1000	15	10	–	–	–	–	–	–
1100	20	11	–	–	–	–	–	–
1200	10	10	–	–	–	–	–	–
1300	15	10	–	–	–	–	–	–
1400	15	9	–	–	–	–	–	–
1500	25	8	–	–	–	–	–	–
1600	20	6	–	–	–	–	–	–
1700	360	4	–	–	–	–	–	–
1800	330	3	–	–	–	–	–	–
1900	320	3	–	–	–	–	–	–
2000	320	2	–	–	–	–	–	–
2100	295	2	–	–	–	–	–	–
2200	275	2	–	–	–	–	–	–
2300	275	3	–	–	–	–	–	–

Time	W/D	W/S	W/D	W/S	W/D	W/S	W/D	W/S
	0613		0614		0615		0616	
0000	–	–	–	–	10	2	10	2
0100	–	–	–	–	10	2	285	3
0200	–	–	–	–	340	2	275	4
0300	–	–	–	–	275	2	275	2
0400	–	–	–	–	270	2	275	2
0500	–	–	–	–	275	2	35	2
0600	–	–	–	–	280	3	10	3
0700	–	–	310	5	290	3	305	3
0800	–	–	315	5	310	3	30	5
0900	–	–	310	5	355	6	40	7
1000	–	–	330	3	5	8	40	8
1100	–	–	340	5	10	9	25	8
1200	–	–	35	8	20	10	20	9
1300	–	–	40	11	15	10	25	9
1400	–	–	50	11	10	9	35	6
1500	–	–	40	8	360	9	15	7
1600	–	–	85	7	5	7	320	4
1700	–	–	45	4	360	7	315	4
1800	–	–	20	3	15	5	285	3
1900	–	–	335	3	320	4	35	3
2000	–	–	310	3	300	3	25	2
2100	–	–	55	2	295	3	30	4
2200	–	–	50	2	325	4	50	3
2300	–	–	315	3	345	5	45	3

Time	W/D	W/S	W/D	W/S	W/D	W/S	W/D	W/S
	0617		0618		0619		0620	
0000	45	2	310	4	290	3	285	3
0100	45	2	270	3	315	2	265	4
0200	50	4	315	4	350	6	255	5
0300	70	2	275	3	310	3	265	4
0400	45	3	285	3	275	4	280	3
0500	45	3	265	3	270	4	265	3
0600	45	5	330	4	280	4	265	3
0700	45	8	20	5	270	4	265	3
0800	65	7	20	8	295	4	90	4
0900	55	7	15	7	335	5	340	3
1000	50	8	20	8	350	5	5	4
1100	50	8	25	8	10	7	35	6
1200	50	8	20	9	20	8	45	7
1300	35	9	360	8	25	8	40	5
1400	30	10	355	8	30	9	65	4
1500	25	10	355	7	25	6	45	5
1600	20	8	355	9	360	4	45	5
1700	30	6	345	7	360	5	10	3
1800	20	4	340	7	355	3	5	3
1900	15	4	10	4	10	2	30	3
2000	15	6	10	4	325	2	270	4
2100	15	5	10	4	290	3	275	4
2200	340	4	5	3	260	2	280	3
2300	290	3	280	3	270	2	275	3

Time	W/D	W/S	W/D	W/S	W/D	W/S	W/D	W/S
	0621		0622		0623		0624	
0000	280	3	275	3	275	4	25	4
0100	280	4	315	3	285	3	35	3
0200	285	3	20	4	260	4	40	4
0300	280	3	360	3	255	4	30	5
0400	290	2	315	3	260	5	40	6
0500	295	3	310	2	265	4	25	5
0600	290	3	315	2	260	4	10	3
0700	300	3	20	4	280	4	40	4
0800	330	4	15	9	290	5	55	7
0900	25	8	10	10	315	5	45	8
1000	35	9	25	12	345	7	40	9
1100	25	10	30	11	360	6	40	10
1200	30	9	30	11	10	8	40	9
1300	15	9	15	9	15	9	45	9
1400	20	8	20	12	20	10	25	9
1500	10	8	10	12	20	11	20	8
1600	15	7	10	9	40	10	15	8
1700	20	7	5	9	40	10	15	8
1800	10	4	360	6	30	6	20	7
1900	10	3	360	7	35	5	15	5
2000	360	3	325	4	20	4	360	4
2100	350	3	325	3	25	4	10	4
2200	350	3	285	3	30	5	350	3
2300	310	2	275	4	35	5	15	4

Time	W/D	W/S	W/D	W/S	W/D	W/S	W/D	W/S
	0625		0626		0627		0628	
0000	10	4	285	3	95	2	280	4
0100	10	4	290	4	85	2	275	3
0200	360	3	310	5	80	2	275	4
0300	350	5	330	5	60	2	275	3
0400	10	4	5	7	45	3	275	4
0500	15	4	360	8	340	2	265	4
0600	360	3	15	9	300	3	270	4
0700	30	8	345	4	80	2	290	4
0800	25	9	290	4	75	2	315	5
0900	30	9	300	4	10	4	345	7
1000	30	10	325	5	15	6	360	8
1100	35	10	340	4	40	8	5	8
1200	25	8	360	3	40	9	20	10
1300	20	6	360	3	40	9	30	10
1400	25	5	360	2	45	8	25	12
1500	25	5	360	2	45	7	25	13
1600	10	4	360	2	35	7	20	9
1700	360	3	40	3	30	7	360	7
1800	315	3	30	3	25	5	350	6
1900	290	3	40	4	15	3	340	6
2000	290	4	35	3	360	2	350	5
2100	290	4	90	2	325	2	345	4
2200	290	4	90	2	285	3	310	5
2300	295	4	85	5	285	4	290	5

Time	W/D	W/S	W/D	W/S	W/D	W/S	W/D	W/S
	0629		0630					
0000	335	5	325	4				
0100	360	7	355	4				
0200	350	5	320	4				
0300	290	4	305	3				
0400	285	4	310	4				
0500	300	4	305	3				
0600	300	4	295	3				
0700	295	4	290	3				
0800	310	4	290	3				
0900	350	7	300	5				
1000	25	11	330	6				
1100	30	12	350	8				
1200	25	12	350	8				
1300	25	12	350	8				
1400	20	12	360	9				
1500	15	13	10	9				
1600	10	9	10	9				
1700	360	10	20	8				
1800	345	8	20	8				
1900	355	7	15	7				
2000	340	5	15	8				
2100	340	6	20	8				
2200	335	5	20	9				
2300	345	5	15	7				